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ABSTRACT

This document contains the following papers on the young child from the SITE (Society for Information Technology & Teacher Education) 2002 conference: (1) "Young Children's Computer Use: Perspectives of Early Childhood Teacher Educators" (Mehmet Buldu); (2) "Using Technology To Support Preschool Teachers' Professional Development" (Julie Hirschler and Carol Darcy); and (3) "Computer Use within Learning Environments: Early Childhood Case Study" (Sylvia S. Martin, Randy L. Seevers, Caroline M. Crawford). Brief summaries of conference presentations on using technology in the primary grades, using technology to support student learning, and appropriate ways to incorporate technologies with grades K-2 are also included. Most papers contain references. (MES)

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Young Child (SITE 2002 Section)

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The events of 2001 have left an indelible mark on us all and have placed our humanity at the forefront of our lives. This is interesting because for those of us work with information and communication technologies (ICT), it reinforces the need for humans to be in control of machines and to use them to complete our own needs and desires. This process begins in the early childhood years when young children appropriate technologies to make sense of the world in which they live and also to communicate with others. There are those who wish to isolate young children from ICT and they suggest that children need to play only with three dimensional materials in order to understand the environments that they inhabit. Such people ignore the fact that technologies are an integral part of young children's lives and to dismiss them is to become like the ostrich who submerges his head in the sand. I recently met a teacher who proudly told me that her preschool was a "technology free zone". She justified this in terms of developmental theory that required active engagement with materials and stated that young children "had too much technology in their lives". This assertion, based on no evidence at all, was, for me, patronizing, and naïve in the extreme. To ignore the role that technologies play in our lives is bizarre. We need to appropriate the power of information and communication technologies so that they can help children to learn in new and dynamic ways. To ignore them, and their potential for learning and expression, is to further isolate early childhood education. How can you ignore a resource that is such an essential part of our lives?

The papers in this section have, as their focus, the use of computers with young children. Buldu interrogates early childhood teachers and discusses the findings of interviews which have, as a focus, children's views of computers and the ways in which they can be used in educational contexts. Buldu suggests that we should pay attention to the results of the study since they impact on the lives of the children that we teach.

Hall considers using technology in the primary grades of schooling. He considers the digital divide in a collaborative project that observed student achievement through the primary grades. Yost looks beyond "drill and kill" software to examine ways in which technologies can be incorporated into early childhood curriculum. She suggests ways in which teachers can use generic software to create learning opportunities that are exciting and innovative. Hirschier describes ways in which technologies can support preschool teachers professional development. She worked with 42 Head Start teachers and discovered that they needed professional development in the area of literacy that incorporated the use of ICT. Hirschier worked with teachers, showing them ways of using ICT effectively and discusssd the findings of their work in the context of the provision of quality early childhood experiences. This work links closely with the paper by Crawford which focussed on children in preschool contexts and considered a particular cohort, that is those with a disability. The study is interesting as it highlighted the diverse ways in which computers can be used with this group in exciting and innovative ways.

The papers in this section are examples of the ways in which children and their teachers have appropriated ICT in varying contexts. It is evident that the use of ICT afford opportunities for young children to explore ideas in new and dynamic ways that were not possible without the technologies and additionally that new technologies engage children so that they are motivated to learn. Early childhood curricula have almost been stuck in a time warp-that was the 19th century. Young children today are curious and excited and use ICT to explore concepts and communicate with others as a natural part of their everyday lives. Teachers and administrators should embrace new ways of thinking and learning. To dismiss ICT for young children is to ignore an essential element of their existence and further isolate education from the current and contemporary lives of children who inhabit our schools.

YOUNG CHILDREN'S COMPUTER USE: PERSPECTIVES OF EARLY CHILDHOOD TEACHER EDUCATORS

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Abstract:

What early childhood teacher educators know about and think about computers and computer use for young children will likely affect what future early childhood teachers implement in early childhood settings. In this study, the researcher wished to find out the possible perspectives of early childhood teacher educators on computer use of young children. Three early childhood teacher educators teaching at two Midwestern universities in the US were interviewed for the study. The findings categorized into four categories—knowledge, experience, beliefs about the value of computers, and beliefs about practice. When sorting out the data, the researcher first examined the similarities among the subjects' responses, and then analyzed the differences. The author concludes that it is critical we pay attention to the results of this study and others that examine the teacher educators. It is the first window through which we see what future teachers may implement in early childhood programs.

Introduction

Since computers have been introduced to early childhood education, there has been a wide debate among early childhood professionals about both the developmental appropriateness and the effectiveness of computer use for young children. Classroom and policy decisions made as a result of these debates will have significant impact on young children's development and learning. Therefore, it is important to examine the perspectives of early childhood education professionals, find out where they stand on the issue of computer use with young children. In particular, this researcher examined early childhood education teacher educators' opinions and values.

Conceptual Framework and Rationale

Computers are very important parts of our lives and will probably be more important in the future. Since the last two decades, they have been increasingly present in early childhood education settings. As Clements (1999) states, toward the end of the 1980s, only one-fourth of licensed preschools had computers, and he continues that today almost every preschool has a computer, with the ratio of computers to students changing from 1:25 in 1984 to 1:22 in 1990 to 1:10 in 1997 (Clements 1999). This last ratio shows us that computers became a part of early childhood education settings; therefore, teachers of early childhood education need to be familiar with the latest computer technology in order to make use of its advantages for young children.

In their position statement "Technology and Young children - Ages Three through Eight" (National Association for the Education of Young Children 1996), the National Association for the Education of Young Children (NAEYC) states that "As early childhood educators become active participants in a technological world, they need in-depth training and ongoing support to be adequately prepared to make decisions about technology and to support its effective use in learning environments for children." In this statement, NAEYC also mentions that institutions of higher education have a responsibility to provide training for future teachers of early childhood education on how to integrate

computer technology into early childhood curriculum. Here the biggest responsibility belongs to early childhood teacher educators.

What early childhood teacher educators know about and think about computers and computer use for young children will likely affect what future early childhood teachers implement in early childhood settings. In this study, the researcher wished to find out the possible perspectives of early childhood education scholars on computer use of young children—their knowledge, their experiences, their opinions about value, and their opinions about practice.

Research Questions

Specifically, this researcher was guided in this study by the following questions: "What is the perceived knowledge, experience, opinion and values of early childhood education instructors?" and "What is the relationship between knowledge, experience, opinions and values of early childhood instructors and implementations for future early childhood teachers?"

Methodology

Convenience samples of three early childhood teacher educators were interviewed for the study. Interviews were audiotaped, and notes were taken during the sessions.

Participants were early childhood education instructors who have been teaching at two different Midwestern universities in the U.S. Early Childhood Teacher Educator A has 14 years teaching experience, and has worked in early childhood education programs at two different universities since 1986. Early Childhood Teacher Educator B has 10 years teaching experience and has been working in early childhood education programs for 6 years. Prior to this she taught two years in Psychology, and one year in Child Development and Family Studies. Finally, Early Childhood Teacher Educator C had 4 years of teaching experience in early childhood education programs at two different colleges as an instructor and associate instructor.[1]

Each subject was interviewed in an-hour-long, and semi-structured interview session. Although interviews were organized into predetermined questions, questions were used only as a flexible guide. Based upon the responses of the subjects, the researcher found he needed to adapt the order and phrasing of the questions from one interview to the next.

During the interviews, four types of questions were asked. These were as follows: (a) background questions, (b) knowledge questions, (c) experience questions, and (d) opinion and value questions. The purpose of these interview questions was to discover the relationship between instructors' knowledge, experience, beliefs about the value of computers, and beliefs about the practice and how future early childhood education teachers may implement what they learned from their instructors.

Are teacher educators, especially those who have been in the field many years, aware of the issues being debated about computer use and young children? Do they have well-informed opinions and beliefs about this issue? This information is important because what early childhood teacher educators know, believe, and are able to do in terms of computer-use and its value will impact what future teachers learn from their instructors at college level about young children and computers.

Analysis and Interpretation

Based on the framework provided by the questions and results of the interviews, the findings can be categorized into four categories—knowledge, experience, beliefs about the value of computers, and beliefs about practice. When sorting out the data, the researcher first examined the similarities among the subjects' responses, and then analyzed the differences.

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[1] All samples were informed about the purpose of the interviews.

Knowledge:

When subjects were asked about their computer literacy and the amount of knowledge they used in their teaching, Instructor A and B defined themselves as fairly computer literate. They stated that they could do word processing, accessed the web frequently, used e-mail daily, did statistical analyses on the computer, and in general, they felt that they were able to do anything they needed to do on the computer. Instructor C, however, told the researcher that she felt she was not as well prepared to use the available technology effectively. One thing that was common across the three participants was that they all searched the web for information that they can share with their classes. They also each indicated that they were using e-mail for discussion groups and to facilitate communication. In addition, Instructor A and B mentioned that they were using power point for lecturing purposes.

The subjects were also asked about heir familiarity with programs and software for young children. Interview results indicated they were all somewhat familiar with the programs and software for young children. In particular, they were familiar with problem solving kinds of software, drill or practice software, and reading, writing, and painting programs.

Experience:

When participants were asked about their teaching experience at the college level about computers and software for young children, results show that the instructors, to date, do not have much experience teaching about computers and software for young children. Instructor B, however, talked about a new early childhood teacher education program that is about to begin at her university.

"... In the new program, technology is one of the three things we want to hit on from the beginning of the program to the end. In this program technology is defined broadly; we want students be prepared to teach in the real world, discussing its value, its dangers, who should have it, should it be in every class; we want students, 21-year-olds, going out at least ready to critically examine technology, and be critical consumers of it, be ready to know how to access the world wide web, and how to search it, how to use computers as information sources ..." (Interview with Instructor B)

Moreover, based on the results of interviews, the researcher found that they did not talk about computers and software for young children very much as something they used as in-class activities in their college learning environments. But, they do take their college students on field trips to early childhood education programs in which they talk to the teachers of these programs, and observe young children using computers. According to the instructors' reflections about these field trips, most of the programs they have visited have one or two computers, but children do not use them much. " ...There were some exceptions to that, where computers are used for painting, writing, sound and letter learning, etc., ..." said Instructor C.

Beliefs about the Value of Computers:
(a) Physical and Cognitive Readiness of Young Children to Use Computers

Findings from the interviews show that the instructors had different perspectives about the physical and cognitive readiness of young children to use computers. The participating instructors agreed that young children were very capable of using computers. According to instructors A and C, the question was not that, the question was when they should begin to use them, and whether it was good for them or not.

"I think some kids are able to use them, I think some of the software is ok. But, I do not think they are learning anything different. I am not sure what benefits they are getting from it, and what function it serves in the classroom. I do not think it is the primary means for them to get instruction or information; they can get this stuff later. They can learn what they need to do with computers when they are a little bit older, may be in 2nd grade or 3rd grade it would be helpful. ..." (Interview with Instructor A)

Unlike Instructor A and C, Instructor B had a different perspective. According to her, it depends on a couple things. First, it depends on what we define as young child who varies from birth through age 8, and it depends on what kind of program they, the teachers, are using.

"I feel very differently if we are talking about a primary age child then I do a three or four year old. I am always nervous about the word *readiness*. I think kids are ready for many different things, whether they are good for them or not. I think I prefer to think about whether it, a computer program, promotes their healthy social-emotional, intellectual, language, and overall cognitive growth and development rather than if they are ready or not. ..." (Interview with Instructor B)

Instructor C believes that kids need to be doing other things at ages 2 through 5, such as reading or being read to, writing or having them write their words written down, they need to play, need to be exploring, etc. But, when they get into 1st and 2nd grade she believes that computer access is critical. Her reason for this belief was that we use computers everywhere in our life, whatever level we achieve; we have to know how to use computer technology as a tool, for example communication and record keeping. Those who come from homes in which computer usage is not a part of daily life, for instance children in poverty, may be put at further disadvantage if this tool is not available to them in the classroom. So, Instructor C believes children in elementary school need to learn about computer technology.

(b) Possible Pros and Cons

When asked potential advantages and disadvantages of computers, participating instructors were in nearly total agreement, stating that they see computers as communication tools; a way for children to learn about the whole world through internet, and that computers can be engaging, and entertaining. They also agreed, on the other hand, that computers are addictive, isolating, they replace other activities, and may keep kids from doing *real* things if used too much. Moreover, Instructor B added:

"... maybe depends on the teacher, what he choose for children, how much he knows about computers, how much time he lets children work with computers, whether he supports group work or not"

Beliefs about Practice:

(a) What Would Instructors Like to See in Early Childhood Settings?

Examining the interview data about instructors' beliefs about the value of computers, it was found that they had different beliefs about computer in early childhood education settings. This is revealed in the following sample of quotes:

"... I would like to see that every 1st and 2nd grade classrooms have may be three or four computers that are also internet ready. ... I would like to see teachers have sufficient knowledge about computers and computer programs, and also teachers walking around the class interacting with different groups of children. ..." (Interview with Instructor B)

"... I would like to see teachers really take the ability of computers seriously to individualized different kinds of instructions, and have the ability to demonstrate to the children how they can use computers as a source of information. ..." (Interview with Instructor C)

"... Teachers who want to use them and know how to do it well can use them, but equally teachers who do not want to use them can do a good a job without them. You can be a good teacher with them or without them. It is just a tool like anything else. ..." (Interview with Instructor A)

The most interesting thing in these findings is that each of the instructors emphasizes the importance of the teacher's role facilitating of computer use in the classrooms. How they differ is in what they want or require of the teacher. Instructors B and C want the teachers to be knowledgeable and strong facilitators, individualizing instruction as needed, interacting with children who are using the computers as a tool in groups. Instructor A mirrors part of the sentiment expressed by Instructor B, stated earlier, that the computer is a tool. He differs from Instructor B, however, in that she feels that those teachers who do not use this tool can do their jobs as well as those who do; i.e., she does not feel computers are essential.

(b) What Would Instructors Like to See Taught in Early Childhood Teacher Education at the College Level?

Unlike their beliefs about practice in early childhood education settings all three of the instructors were very similar in their wishes about what they would like to see taught in early childhood education at

the college level. They all wanted early childhood education college students have some experiences in using whatever the current programs are, in searching the world wide web for information, and they want students to know how to use certain kinds of software, and to be prepared to critically examine its usefulness. They want them prepared to be able to select appropriate technology tools for the children in their classrooms, and to understand the importance of staying current – knowing what is the newest and latest and what experts have said about its value. But, on the other hand, Instructor A mentioned that early childhood education college students should decide themselves how much they need to know and learn according to their own teaching style.

Conclusions

This researcher confirmed the findings of Haugland and Wright (1997), who examined the beliefs about the potential dangers and benefits of computers. Haugland and Wright found that some of the early childhood education professionals that they studied fear that computers will replace other activities and may lead to social isolation; while, on the other hand, computers may provide children a wide world to explore, experiment and discover. These findings echo those of the beliefs expressed by Instructors A, B, and C in this study.

It is widely accepted philosophy in the early childhood field, that through active participation, children acquire and construct knowledge. Therefore, before using computers with young children it is important to address the potential effects of computer use on children's development and learning. There have been many debates regarding the potential dangers and benefits of computers in early childhood classrooms, but too few scholars have actually examined prevailing attitudes and beliefs of teachers in the classroom and of those who prepare teachers.

We need to research what new early childhood teachers, recent graduates from college, implement in their early childhood classrooms. Ultimately, we then must examine how the perspectives affect development and learning outcomes with young children. As pointed out by Davis and Shade (1994), despite revolutionary advances in the field of educational computing, technology remains simply a tool, and potentially powerful and stimulating, the computer is only an inert object that can never be a substitute for the personal touch of the classroom teacher. The critical thing is how teachers implement computer use in their school.

It is critical that we pay attention to the results of this study and others that examine the teacher educators. It is the first window through which we see what future teachers may implement in early childhood programs.

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Using Technology in the Primary Grades: An Innovative Educational Pocket PC Project

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The playing field in our nation's public schools is not level and East Carolina University (ECU) and Newport Elementary are collaborating to change that. All students need access, at home and at school, to the tools necessary to allow them the freedom to academically compete with their classmates, regardless of race or socioeconomic background. School leaders need new technological, pedagogical and financial models to make the field as level as possible. Parents and teachers must be part of a communications team to support student achievement. All children must be given an equal chance. The fact that some have more financial resources does not mean they should have a monopoly on essential learning tools.

Many students lacking financial resources do not have necessary technology in their homes. Small and rural schools do not have proper digital equipment in their classrooms. Students negatively affected by this lack of resources are part of America's rapidly developing digital divide. Their work is often inferior to those who have access to tools supporting content mastery. Without innovative, knowledgeable intervention by school leaders this situation will manifest itself as low scores on local and national standardized tests intended to measure student progress and academic accountability.

Methodology will be both quantitative and qualitative. Standard instruments will be used to quantitatively measure student progress in mastery of technology and curriculum content. Technological, pedagogical and financial models will be constructed before the study begins and modified as necessary. More subjective qualitative measurements will be use for parental assessment of the pilot.

A grant has been procured to purchase the necessary technology. The teacher, her assistant and selected school leaders have been given Jornadas and are being trained to use them. Kick-off meetings have been held with central office, school personnel, university officials, students and their parents/guardians.

In October, 2001 each student will be given a Jornada equipped with electronic reader, software for word processing, spreadsheet application, email, Internet access capability, a calculator and scheduling/tasking packages for homework and communication with parents. Students will be tested at that time for knowledge of the technology and content related to the North Carolina Standard Course of Study in the areas of reading and writing.

In November, or whenever the teacher believes a pre-determined level of mastery has been met, students will be retested on their knowledge of the technology, and on their mastery of reading and writing. This testing, intervention and retesting will repeat throughout the school year, moving to different content areas once a pre-selected level of mastery is achieved.

Parents will be expected to nightly review a folder on the Pocket PC reserved for them and to stay informed of students' progress. They will also be required to assess the project. The second graders in this study will be measured against norms established by all second graders in the school. Data will be gathered and analyzed in the late spring and early summer of 2002 and a final report will be produced.

Using Technology to Support Preschool Teachers' Professional Development

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Background and Educational Importance

The recent National Research Council's report, Preventing Reading Difficulties, highlights the urgent need for more effective literacy education for preschool programs that serve low-income children. Indeed, our own research has provided deeper insight into the source and extent of the problem. In our study of 42 Head Start classrooms, we found that teachers are minimally knowledgeable about using books correctly, in supporting early writing, and in engaging in intellectually stimulating conversations with children. When teachers are trained in these areas, they do show marked improvements in the quality of programs and in outcomes for children. However, typical professional development is characterized by episodic workshops or lectures that do not reflect research-based knowledge. In addition, early childhood educators have constraints on their time and resources that are not alleviated by traditional professional development opportunities.

Education Development Center, Inc, Newton, MA, a non-profit international research and development, has piloted and is implementing an technologically-enhanced in-service course for early childhood educators that is constituted of 1) two-way television, 2) web participation, and 3) face-to-face facilitated group discussions. In its first operational year, we are offering two sections of the course from the University of Massachusetts, Lowell to six sites in Massachusetts, Connecticut, North Carolina.

This presentation will explore the results of implementing this multi-technology inservice course for teachers. In doing so, it will attempt to answer the following questions:

1. Do participants stay focused and engaged throughout the interactive television sessions?
2. Do participants feel as comfortable contributing to the interactive television discussion as they would during a typical large class?
3. Do participants use the web to help them communicate with other class participants?
4. Do participants use the web to help them learn the class material?
5. Do participants use the web to get new resources or ideas to use their classroom?

Description of the Project

The project, the *Technologically-Enhanced Learning Environments Enrichment Program (T-LEEP),* includes both course delivery and a research study that examines how preschool teachers and supervisors respond to the use of technology to support their professional growth. The project is being supported by a grant from an interagency consortium of the National Science Foundation, the United States Department of Education, and the National Institutes of Health. Their goal is to develop the knowledge and experimental methods that will allow for the implementation and evaluation of large-scale educational interventions, which will, in turn, inform education policy and practice.

We believe that the integration of technologies adds to the value of professional development for our early childhood teacher participants. Through our course design, we are able to:

- Reach practitioners in geographically diverse locations, minimizing transportation and tie costs.
- Offer opportunities to view model classroom via CD/web augmentation and analyze pedagogy with practitioners during ITV sessions.
- Provide online discussion of course content and online assistance

- Introduce practitioners to interactive instruction and web-based technologies that can strengthen and widen their communities of practice.

To most effectively support our participant teachers, we have created a new model: the *Instructional Videoconference*. This consists of 1) a one hour face-to-face professional conversation among participants at each local site. During this conversation, participants share information about classroom assignments and are introduced to the content of the ITV session to follow 2) the two-hour ITV session and 3) a shorter face-to-face session that follows ITV during which participants expand on questions from the ITV and discuss the classroom assignments for the following weeks. These three modes of instruction have been modeled into a whole whose pieces fit together in the interest of making positive changes in child learning outcomes and teacher practices in early childhood classrooms.

Instructors have developed new Power Point presentations with imbedded videos of model classrooms for analysis during the ITV classes. Several interactional techniques are employed by ITV instructors to increase the cross-site interactions during ITV sessions.

The T-LEEP website complements the ITV portion of instruction and interaction by allowing teachers to do more in-depth literacy work around case studies. Part of each participant's weekly assignment is to log in and post to the discussion board on our website. Because we want to have ITV instructors accessible to students, we have created an Instructor Office Hours section of the website in which students may pose questions directly to the teachers.

Data Collection

Participants complete a survey after each of the ten sessions of the course. After half of the sessions, this is limited to a six-question survey. An extended questionnaire is completed after other sessions in order to collect data on cumulative perceptions of the course and pedagogical practices it is supporting.
At the final session, participants complete a much more extensive standardized questionnaire that gauges their perception of the teaching environment. In including such an evaluation instrument, we hope to compare participants' perceptions of the classroom environment in a technologically-enhanced classroom setting to that in a more traditional classroom.

Web activity will be monitored throughout the course as well to allow us to analyze participants' use of the various layers of our website and to follow the discussion strands based on course content.

We will conduct telephone interviews with a subsample of participants and with the site facilitators to gain qualitative data. These individual interviews will be designed, conducted, and recorded in order to create a format in which stakeholders can be free to explore the meaning of events in this course. Questionnaire and interview analyses will then be conducted to allow for new and fuller understanding of the use of technology in inservice education.

Computer Use Within Learning Environments: Early Childhood Case Study

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Abstract: This exploratory study investigated a seeming disparity between availability and types of computer use within childcare settings and preschool programs for children with disabilities as reported by families of young children with disabilities. Investigators surveyed a random sample of special education teachers and child care administrators. Results indicate: (a) child care setting environments may provide more and varied opportunity for computer use by preschool children, and (b) the availability and implementation of technology within the learning environments for young children warrants further investigation.

Introduction

The benefits of technology use in special education and young child education is well documented in reviews of the literature (Edyburn, 2001; Blackhurst & Edyburn, 2000; Woodward & Reith, 1997; Okolo, Bahr, & Reith, 1993). Although there is an assumption that early childhood special education teachers have computers in their classroom or access to computers, anecdotal reports from teachers indicated a lack of technologically enhanced learning environment opportunities for children with disabilities. The disparity between the education the teachers receive at the university level and the lack of technology available at the early childhood level leads towards a lack of educational tools at an important stage of development (Crawford & Martin, 2001). Anecdotal reports by families of young children with disabilities commented on the lack of technology in their child's classrooms and the availability of technology in after school childcare programs. This study investigated a seeming disparity between the availability and types of use of computers within the child care settings and preschool programs for children with disabilities.

Method

Data for this exploratory pilot study were collected by phone survey. Special education teachers were selected randomly from graduates of the university teacher preparation program and administrators of child care centers were selected randomly from the phone directory yellow pages. Interviewees were surveyed until a pool of ten special education teachers and ten child care administrators met the following qualifications: Children with and without disabilities aged 3-5 years were present in the setting and computers were available for child use. Interviewees were then asked six questions:

1. Do you have computers for the children to use?

2. Do the children use computers with adult assistance?
3. Do the children use computers with peers/a friend?
4. Do the children use computers independently?
5. Do you have software you consider to be for play?
6. Do you have software you consider to be for drill and practice of skills?

In total fourteen teachers of young children with disabilities were contacted. Four were excluded because of lack of computer access for the children. Two childcare settings were also excluded because computers were for the use of staff only. In total twelve childcare centers were contacted and two were eliminated for lack of computer access for the children.

Findings

Findings of this exploratory study to determine a possible disparity between preschool instructional environments for children with disabilities and child care center environments support anecdotal evidence that child care settings provide more and varied opportunity for computer use by young children. Results are presented in Table 1. Implications of this study are limited by sample size, convenience sample of teachers, and self report data. However, findings indicate a need for future studies on the availability of computers and actual computer use by young children in child care and in classroom settings.

Table 1
Frequency of Responses on Computer Use by Young Children

Question	Classroom Setting		Childcare Setting	
	yes	no	yes	no
1. for child use	7	3*	10	0
2. with adults	7	3	5	5
3. with a peer	1	9	8	2
4. independent	4	6	8	2
5. play software	3	7	8	2
6. skills software	4	6	4	6

* software available will not run on the outdated computers

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Using Technology to Support Student Learning

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Abstract: This poster/demo session will present plans and outcomes from a variety of technology-enhanced learning experiences in elementary classrooms. I will provide examples of how technology can be used within all different subject areas and how technology can be used to meet the needs of diverse learners. My demonstrations would include lessons, student and teacher reflections, and student and teacher artifacts of some of the many ways to use technology in the classroom.

To demonstrate my application of technology in the classroom as a leaning tool for students during internships and student teaching, I plan to display a variety of examples of what my students and I have been working on. I will provide examples of how technology can be used within all different subject areas and how technology can be used to meet the needs of diverse learners. My demonstrations would include lessons, student and teacher reflections, and student and teacher artifacts of some of the many ways to use technology in the classroom.

I have many ideas in which I would demonstrate incorporating technology into all subject areas. I would show how the software programs *Inspiration*, *Kidspiration*, *Easy Book Deluxe*, and *Hyperstudio* could be incorporated into lessons for every subject area. I would also demonstrate how a digital microscope brings science alive for students. The program *Timeliner* would also be presented as a wonderful learning tool with many options for students and teachers. I would show the digital slide show that I created using *Timeliner* and the class yearbook that I created using *Kidspiration* and a digital camera. I would also present my electronic portfolio and a *HyperStudio* stack on ladybugs.

For each example that I present, I would show how the teacher and students are able to use this technology to support their work. I would also present ways in which every student could benefit from this form of technology. This poster/demonstration I would allow me to present my knowledge of how to incorporate technology into student learning and it would allow me to learn great ideas of how other educators inspire children through this new and exciting way of teaching.

BEYOND DRILL AND KILL: APPROPRIATE WAYS TO INCORPORATE TECHNOLOGIES WITH K-2

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Abstract: This paper looks at additional ways to incorporate technology into an early childhood classroom beyond drill and practice software. Several peripherals are examined giving purchasing information, an overview of the basic mechanics of the item, plus examples of how the item can be incorporated into an early childhood classroom. The IntelPlay microscope and desktop cameras are discussed. The paper also looks at incorporating appropriately software like Kidspiration, websites, digital cameras, and PowerPoint.

The pros and cons of the appropriate use of technology with young children is still debated. In my mind the issues lie around how the technology is being utilized with the children. There are so many items available it is becoming easier and easier to look at appropriate, hands-on ways to utilize the technologies with children. This paper will look at several options utilizing peripherals, software, websites, and additional technologies.

Over the last three years, Intel and Mattel have partnered to create new technologies specifically for children. The new venture, IntelPlay (http://www.intelplay.com), currently has four products:

QX3 Microscope
Movie Creator
Sound Morpher
Me2Cam

I have had personal experience with three of the four products. I am sold on the use of two of them for classrooms. The microscope and movie camera are excellent tools for young children to explore and utilize. The microscope allows the children to examine specimens at three magnification levels. The children can take snapshots of the specimens or create movies of the specimen. The microscope comes with a camera that allows the children to further manipulate the specimen with a paint program. Any activity that involves a microscope can be carried out with this tool. One of the benefits I have found is that it allows multiple viewers of the image, since it displays on the computer monitor.

The second item, Movie Creator, allows the children to explore using a movie camera that is scaled to their size. The children look through an eyepiece to see the actual image being photographed. The use of an eyepiece, instead of an LTD, actually assists in the steadying of the camera for the young hands. Again, excellent software allows the child to manipulate the image further. This camera allows even kindergarten children to operate it successfully. Both are relatively inexpensive at around $100 each.

Another tool that I have found beneficial is the "Flip-Chart" from Mimio (http://www.mimio.com). This hardware plugs in to a USB port and attaches to the standard flip chart. This allows teachers to save the chart work to a graphic that can be altered or shared with parents in a newsletter. This can be a great timesaver for an early childhood teacher. You can save all the chart work to a smaller, readable size without taking up the wall space that a chart paper will. This allowed me to keep work and revisit it when desired, or to print the work to send home to parents. Mimio has text conversion software that I have not invested in at this time, but intend to soon. I believe that this will further increase the desirability of this peripheral.

I have used an inexpensive desktop videoconference camera that can be incorporated in to centers for the children to interact with and explore. The children have used the camera in a dramatic play center as they

explored being meteorologists in a television studio. The software with my Kodak camera is easy for the children to manipulate. They have been successful at creating both still and video pictures. The still images can be inserted into printed documents to share with family and friends. Both file formats can be emailed to others. The videos from this camera have been used in several PowerPoint books created with the children. The camera has held up well to classroom use, the current camera has been used for three school years. A little word of advice is to attach the camera to a tripod for better stability, fewer falls seem to occur this way.

I have used digital cameras for several years for a variety of activities. I have had reservations over allowing the children to operate the $800 Sony with out close supervision. However, a low-end Polaroid digital camera, less than $50, has been effective. Yes, I did sacrifice the quality of the pictures some, but the ease of mind is better. The pictures are a little more cumbersome for the children to retrieve also. But the children can be more autonomous in the use of the camera. They take pictures of their finished block structures and manipulative projects to print and take home.

Software like Kidspiration has gone a long way to encourage children to interact with computers as a tool. This program assist teachers in creating activities for the children to interact with that relate to the current topics of discussion in the classroom. Kidspiration will read the directions to the children, assisting them in recalling what they are to do. Story maps can be created, or whole stories can be written and read back to the children.

An old stand by, but little used in the United States, is the Roamer. This round dish like robot allows children to begin exploring programming. The children use the touch pad on the top and tell the Roamer what direction to go, for how long, and even play music as it goes. The children can create roads for the Roamer, or insert a pen to have the Roamer write their names. While the Roamer is an excellent tool, it is rather expensive at $300 for a basic start up.

Websites need to be explored in advance of using them with children but can be a great addition to the early childhood programs. When discussing dinosaurs and how scientists dig for the fossils, a documentary website on a dinosaur dig was very helpful. The children were able to see photographs of an actual dig, increasing their understanding of what is involved and what a site looks like (http://tccsa.freeservers.com/adventure/dig.html). During this same unit, children researched individual dinosaurs using information from ZoomDinosaurs.com. Weather cam websites provide the children with a look at what the world outside our small community. During a unit on castles, websites were located that allowed the children to see castles in different locations. Frequently children think of castles as being only the British versions found in fairytales. Because of a high level of diversity in the classroom, we located sites to look at castles in the countries that the children had come from. It was interesting for everyone to learn about castles in Thailand, Korea, China, India, and Egypt. This certainly added a new level to our study.

Monarch Watch (http://www.monarchwatch.org/) was beneficial during our fall monarch study. The information on the site helped the children understand about the migration of the butterflies and the importance of the milkweed to the caterpillar development.

Using image search engines at AltaVista and Google provide the children with the visual images that are frequently missing. It is potential to answer questions immediately thanks to these engines. When reading dinosaur stories and a new dinosaur is named, we search for a picture to learn what it looked like. A child wanted to study mailboxes was able to see a large variety of them through these searches.

Authors' websites allow the children to get to know more about authors and their work. Some authors have activities for the children to explore or printables for them to work with. Jan Brett, (http://www.janbrett.com), probably has one of the richest websites to support her work. Most of the sites have email contact for the author also.

I have used PowerPoint with kindergarten children for 5 years. We have made many multimedia books and projects. These are done as extensions of projects currently going on in the classroom. The books frequently include drawings done by the children, video clips or audio clips. In addition to supporting emergent readers

and writers, I have used it as a tool to evaluate students' knowledge at the end of a study.

These are just a sampling of the many items available to support appropriate, hands-on ways to utilize the technologies with children. The quality of items and types of activities have improved every year and will continue to increase young children's ability to use technology in appropriate ways.

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